UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/099,048	06/17/98	NACAMULLI L.	KM39091

HM22/0425

BARRY EVANS , ESQ.
KRAMER LEVIN NAFTALIS AND FRANKEL , L.
919 THIRD AVENUE
NEW YORK NY 10022

EXAMINER	
CEPERLEY, M	
ART UNIT	PAPER NUMBER
1641	12

DATE MAILED: 04/25/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/099,048	Applicant(s) NACAMULLI ET AL.	
	Examiner Mary E. (Molly) Ceperley	Art Unit 1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (e). In no event, however, may e reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less then thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, ceuse the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months efter the mailing date of this communication, even if timely filed, may reduce eny earned patent term edjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 February 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-75* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-36* is/are allowed.

6)☒ Claim(s) *37-75* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other: .

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. The original patent, or an affidavit or declaration as to loss or inaccessibility of the original patent, must be received before this reissue application can be allowed. See 37 CFR 1.178.

3. The specification is again objected to under 37 CFR 1.71 and claims 37-75 are rejected under 35 USC 112, first paragraph, for the reasons stated in paragraphs 5. and 6. of the August 14, 2000 Office action.

Applicants' arguments filed February 14, 2001 have been fully considered but they are not persuasive. At page 8 of the Remarks, applicants argue that the broad generic concept encompassed by claims 37-75 is supported at column 2 of the original patent as cited in the Remarks, page 8, first full paragraph. This portion of the specification, which provides the only "generic" description which relates in any way to the claims at issue, states:

> A biomolecular reaction which is to be monitored according to the present invention ***must be carried out using a luminophore under reaction conditions which will relate the concentration of a reactant or a product of the reaction to the ECL intensity***.

This statement clearly says nothing about the type of "biomolecular reaction" contemplated nor anything about how the "luminophore" is affected by or is involved with the "reaction". The actual enabling disclosure of how a determination of the time course (rate) of the reaction is implemented, appears just below this cited section of the patent beginning at column 2, line 36.

Two assay formats are enabled i.e. the measurement of the time course of an enzymatic reaction (col. 6, line 35 *et seq*) and that of antigen-antibody interaction (col. 8, line 36 *et seq*).

Applicants argue that the normalization and calibration steps required to practice the invention would be readily known and apparent to one of ordinary skill in the art and therefore should not be required to be recited in the claims at issue (Remarks, pages 8 and 9). This statement is at odds, however, with the actual disclosure of the patent wherein the specific normalization and calibration steps are clearly critical to the practice of the invention (see col. 2, line 36 *et seq*). Nowhere in the patent is it stated that the normalization and calibration steps to be used are routine in the art nor is there any citation of prior art in the patent to establish what normalization and calibration techniques are well known in the art and are intended to be used for the practice of the claimed methods. The limitations of claims 73-75 are also not described in the original patent.

4. Claims 37-75 are rejected under 35 USC 112, second paragraph, for the reasons stated in paragraph 8. of the August 14, 2000 Office action. Applicants' state that "the present claims are clear and definite to one of ordinary skill in the ***art when properly construed in view of the specification***" (emphasis added). However, for the reasons stated in paragraph 3. above, the specification is considered to provide an enabling written description only of an assay which does include the normalization and calibration steps as recited in allowed claims 1-36.

5. Claims 37-75 are rejected under 35 USC 112, second paragraph, as being indefinite for the following reasons.

a) 9.a. of the last Office action as it relates to claim 37

In claim 37 it is unclear what the "reactant" reacts with i.e. what type of reaction is intended. Applicants' statement at page 11 of the Remarks that the reactant can "react with anything" or may "decompose into a reaction product which increases or decreases the ECL signal" does not further clarify what type of "reactant" is intended, how it reacts or, in the event of decomposition, how this decomposition product would affect the ECL signal.

b) 9.b. of the last Office action as it relates to claims 37 and 62

The working examples cited by applicants at page 12 of the Remarks are examples of operational formats. However, the claims, as written, are indefinite in that they do not specify the same limitations/requirements as are described in these examples. Applicants' statement that "the luminophore may or may not be attached to the reactant or some other reaction component" does not clarify how the claimed methods function.

c) In claims 73-75, it is not clear how the recited steps effect "determining said time course of reaction". The claims do not recite any step which correlates/compares the "normalizing" reactions with the reaction of claim 37.

6. Claims 37-42, 47, 48, 51-58, 60, 61, 68, and 71-75 are rejected under 35 USC 112, first paragraph, as being based on a non-enabling written description. The reasoning set forth in paragraph 3 above applies as well to this rejection.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 37-75 are rejected under 35 USC 103 as being obvious over each of ***(1)*** Martin et al (Analytica Chimica Acta 281 (1993), 475-481), Bard et al (U.S. 5,310,687) or Shibue et al (EP 500,305) taken in combination with each of ***(2)*** Karlsson et al (J. Immunological Methods, 145 (1991), 229-240), Sieber (U.S. 4,476,230) or Freundlich et al (U.S. 4,857,454).

References ***(1)*** describe conventional assays to determine either antigen-antibody or enzyme-enzyme substrate reactions using electrochemiluminescent labels as described in instant claim 37. See Martin et al, glucose quantitation with a ruthenium ECL label: page 478, RESULTS AND DISCUSSION; Bard et al, ruthenium ECL label used for determinations of a wide variety of analytes including antigen-antibody binding: col. 5, lines 47-62 and col. 13, lines 56-68; Shibue et al, ECL detection of antibody-antigen reactions: col. 1, lines 35-42; col. 4, lines 51-58; col. 5, lines 35-47. These references describe standard determinations of ECL intensity versus analyte concentration (e.g. Martin et al, Fig. 4), but do not specifically describe monitoring the time course of the reaction.

References ***(2)***, however, establish that it is well known in the art to monitor the time course (i.e. kinetics) of both antigen-antibody and enzyme-enzyme substrate reaction using conventional analytical methodology. See Karlsson et al, colorimetric monitoring of antigen-antibody reactions: page 230, first paragraph; Sieber, monitoring of antigen-antibody reactions:

col. 1, lines 37-41; Freundlich et al, enzyme determination: col. 1, lines 28-34; col. 4, lines 28-39.

In view of the fact that monitoring the time course of antigen-antibody and enzyme-enzyme substrate interactions using conventional analytical techniques is well known in the art (references ***(2)***), it would be obvious to use the well known, equivalent ECL analytical techniques of references ***(1)*** for the same purpose, as claimed.

9. Martin et al (U.S. 5,804,400) and Knight et al (Analyst, May 1994, Vol. 119, 879-890) are cited to further show the state of the art.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary E. (Molly) Ceperley whose telephone number is (703) 308-4239. The examiner can normally be reached from 8 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le, can be reached on (703) 305-3399. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7230.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1234.

April 20, 2001

Mary E. Ceperley
Primary Examiner
Art Unit 1641